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Note by the President of the Security Council

At its 6335th meeting, held on 9 June 2010 in connection with the item entitled "Non-proliferation", the Security Council adopted resolution 1929 (2010).

In paragraph 4 of the resolution, the Security Council requested the Director General of the International Atomic Energy Agency to communicate to the Security Council all his reports on the application of safeguards in the Islamic Republic of Iran.

Accordingly, the President circulates herewith the report of the Director General dated 23 May 2014 (see annex).

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Annex

Letter dated 23 May 2014 from the Director General of the International Atomic Energy Agency addressed to the President of the Security Council

I have the honour to enclose herewith the report requested by the Security Council in its resolution 1929 (2010), which I have submitted to the Board of Governors of the International Atomic Energy Agency.

I should be grateful if you would bring the present letter and the report (see enclosure) to the attention of the members of the Security Council.

(*Signed*) Yukiya **Amano**

Enclosure

[Original: Arabic, Chinese, English, French, Russian and Spanish]

Implementation of the NPT Safeguards Agreement and relevant provisions of Security Council resolutions in the Islamic Republic of Iran*

Report by the Director General

Main Developments

- Iran has implemented the seven practical measures that it agreed with the Agency in February 2014 in relation to the Framework for Cooperation and the Agency is analysing the information provided by Iran.

- In relation to the Framework for Cooperation, on 20 May 2014, Iran and the Agency reached agreement on five additional practical measures to be implemented by Iran in the next step by 25 August 2014.

- The Agency has continued to undertake monitoring and verification in relation to the nuclear-related measures set out in the Joint Plan of Action (JPA) (see Annex III).

- Since the JPA took effect, Iran has not enriched UF_6 above 5% U-235 at any of its declared facilities. As a result of dilution and conversion that has taken place over the same period, Iran's stock of UF_6 enriched up to 20% U-235 has decreased from 209.1 kg to 38.4 kg.

- Enrichment of UF_6 up to 5% U-235 continues at a rate of production similar to that indicated in the Director General's previous report. No additional IR-2m or IR-1 centrifuges have been installed at FEP, FFEP or PFEP (production area). The amount of nuclear material that remains in the form of UF_6 enriched up to 5% U-235 is 8475 kg.

- No additional major components have been installed at the IR-40 Reactor and there has been no manufacture and testing of fuel for the reactor.

- Managed access continues to be provided to the Agency to centrifuge assembly workshops, centrifuge rotor production workshops and storage facilities.

* Circulated to the Board of Governors of the International Atomic Energy Agency under the symbol GOV/2014/28.

A. Introduction

1. This report of the Director General to the Board of Governors and, in parallel, to the Security Council, is on the implementation of the NPT Safeguards Agreement[1] and relevant provisions of Security Council resolutions in the Islamic Republic of Iran (Iran). It contains information, inter alia, regarding the implementation of measures under the "Joint Statement on a Framework for Cooperation" (the Framework for Cooperation) and the Joint Plan of Action (JPA), including an Annex which provides an update on the implementation of "voluntary measures" that Iran has agreed to undertake in relation to the JPA.

2. The Security Council has affirmed that the steps required by the Board of Governors in its resolutions[2] are binding on Iran.[3] The relevant provisions of the aforementioned Security Council resolutions[4] were adopted under Chapter VII of the United Nations Charter and are mandatory, in accordance with the terms of those resolutions.[5] The full implementation of Iran's obligations is needed in order to ensure international confidence in the exclusively peaceful nature of its nuclear programme.

3. As previously reported, on 11 November 2013 the Agency and Iran signed a "Joint Statement on a Framework for Cooperation" (GOV/INF/2013/14). In the Framework for Cooperation, the Agency and Iran agreed to cooperate further with respect to verification activities to be undertaken by the Agency to resolve all present and past issues, and to proceed with such activities in a step by step manner.

4. As previously reported, in a separate development, on 24 November 2013 China, France, Germany, the Russian Federation, the United Kingdom and the United States of America (E3+3) agreed on the JPA with Iran. The JPA, inter alia, stated that the "goal for these negotiations is to reach a mutually-agreed long-term comprehensive solution that would ensure Iran's nuclear programme will be exclusively peaceful".[6,7] According to the JPA, which took effect on 20 January 2014, the first step would be time-bound (six months) and renewable by mutual consent. As requested by the E3+3 and Iran, and endorsed by the Board of Governors (subject to the availability of funds), the Agency is undertaking the necessary nuclear-related monitoring and verification activities in relation to the JPA, involving activities additional to those already being carried out pursuant to Iran's Safeguards Agreement and relevant provisions of Security Council resolutions.

5. This report addresses developments since the Director General's previous report (GOV/2014/10), as well as issues of longer standing.[8]

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[1] The Agreement between Iran and the Agency for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/214), which entered into force on 15 May 1974.

[2] Between September 2003 and September 2012, the Board of Governors adopted 12 resolutions in connection with the implementation of safeguards in Iran (see GOV/2013/56, footnote 2).

[3] Security Council resolution 1929 (2010).

[4] GOV/2013/56, footnote 4.

[5] Part I.A of the Agency's Relationship Agreement with the United Nations (INFCIRC/11).

[6] GOV/2014/2, para. 3.

[7] The JPA also stated that a Joint Commission would work with the Agency to "facilitate resolution of past and present issues of concern".

[8] The Director General continues to provide the Board of Governors with monthly updates on Iran's implementation of "voluntary measures" undertaken in relation to the JPA, the fourth of which is contained in Annex III to this report.

B. Clarification of Unresolved Issues

6. The Board of Governors, in its resolution of November 2011 (GOV/2011/69), stressed that it was essential for Iran and the Agency to intensify their dialogue aimed at the urgent resolution of all outstanding substantive issues for the purpose of providing clarifications regarding those issues, including access to all relevant information, documentation, sites, material and personnel in Iran. In its resolution of September 2012 (GOV/2012/50), the Board of Governors decided that Iranian cooperation with Agency requests aimed at the resolution of all outstanding issues was essential and urgent in order to restore international confidence in the exclusively peaceful nature of Iran's nuclear programme.

7. As previously reported, pursuant to the Framework for Cooperation, Iran implemented the six initial practical measures within the specified three-month period.[9] Since the Director General's previous report and as requested by the Agency, Iran has provided additional clarifications of some of the information it initially provided to the Agency pursuant to the implementation of these initial practical measures. These clarifications included the provision of preliminary design information for a new research reactor[10] (see footnote 12). On the basis of its analysis of the information provided by Iran, the Agency currently has not identified any outstanding issues in relation to that information.

8. In relation to the Framework for Cooperation, Iran has implemented the seven practical measures agreed with the Agency on 9 February 2014, as follows:[11]

- Provided mutually agreed relevant information on, and managed access to, the Saghand mine in Yazd (6 May 2014).
- Provided mutually agreed relevant information on, and managed access to, the Ardakan concentration plant (7 May 2014).
- Submitted an updated Design Information Questionnaire (DIQ) for the IR-40 Reactor (12 February 2014) and, at the request of the Agency, provided clarification of certain of the information contained in the DIQ (29 March 2014).
- Agreed with the Agency on safeguards measures for the IR-40 Reactor (5 May 2014).
- Provided mutually agreed relevant information on, and arranged the Agency's technical visit to the Lashkar Ab'ad Laser Centre (12 March 2014).
- Provided information on source material, which has not reached the composition and purity suitable for fuel fabrication or for being isotopically enriched, including imports of such material and on Iran's extraction of uranium from phosphates (in a letter dated 29 April 2014).
- Provided information and explanations for the Agency to assess Iran's stated need or application for the development of Exploding Bridge Wire detonators (EBW) (see paras 55-57 below).

The Agency confirms that Iran has implemented the seven practical measures and the Agency is analysing the information provided by Iran.

[9] GOV/2014/10, para. 13.
[10] GOV/2014/10, para. 13.
[11] GOV/INF/2014/3, Annex.

9. During technical meetings in Tehran on 26 April 2014 and on 12 May 2014, the Agency put forward suggestions for practical measures to be implemented by Iran in relation to the Framework for Cooperation. At a technical meeting in Tehran on 20 May 2014, the Agency and Iran agreed on five additional practical measures to be implemented by Iran during the next step by 25 August 2014, as follows:

- Exchanging information with the Agency with respect to the allegations related to the initiation of high explosives, including the conduct of large scale high explosives experimentation in Iran.
- Providing mutually agreed relevant information and explanations related to studies made and/or papers published in Iran in relation to neutron transport and associated modelling and calculations and their alleged application to compressed materials.
- Providing mutually agreed information and arranging a technical visit to a centrifuge research and development centre.
- Providing mutually agreed information and managed access to centrifuge assembly workshops, centrifuge rotor production workshops and storage facilities.
- Concluding the safeguards approach for the IR-40 reactor.

C. Facilities Declared under Iran's Safeguards Agreement

10. Under its Safeguards Agreement, Iran has declared to the Agency 18 nuclear facilities[12] and nine locations outside facilities where nuclear material is customarily used (LOFs)[13] (Annex I). Notwithstanding that certain of the activities being undertaken by Iran at some of the facilities are contrary to the relevant resolutions of the Board of Governors and the Security Council, as indicated below, the Agency continues to verify the non-diversion of declared material at these facilities and LOFs.

D. Enrichment Related Activities

11. Contrary to the relevant resolutions of the Board of Governors and the Security Council, Iran has not suspended all of its enrichment related activities in the declared facilities referred to below. However, since 20 January 2014, Iran has not produced UF_6 enriched above 5% U-235 and has continued to reduce its stock of UF_6 enriched up to 20% U-235. All of the enrichment related activities at Iran's declared facilities are under Agency safeguards, and all of the nuclear material, installed cascades, and feed and withdrawal stations at those facilities are subject to Agency containment and surveillance.[14]

[12] Since the Director General's previous report, Iran has declared one additional facility, the Fars Research Reactor (FRR): a 10 MW light water reactor fuelled by low enriched uranium (LEU) planned for location in the vicinity of Shiraz.

[13] All of the LOFs are situated within hospitals.

[14] In line with normal safeguards practice, small amounts of nuclear material (e.g. some waste and samples) may not be subject to containment and surveillance.

12. Iran has stated that the purpose of enriching UF_6 up to 5% U-235 is the production of fuel for its nuclear facilities.[15] Iran has also stated that the purpose of enriching UF_6 up to 20% U-235 is the manufacture of fuel for research reactors.[16]

13. Since Iran began enriching uranium at its declared facilities, it has produced at those facilities:

- 11 977 kg (+866 kg since the Director General's previous report) of UF_6 enriched up to 5% U-235, of which 8475 kg (+866 kg since the Director General's previous report)[17] remain in the form of UF_6 enriched up to 5% U-235[18] and the rest has been further processed (see Annex II); and
- Up to the point at which it stopped producing UF_6 enriched up to 20% U-235, 447.8 kg of such material, of which 38.4 kg (-122.2 kg since the Director General's previous report) remain in the form of UF_6 enriched up to 20% U-235 and the rest has been further processed through downblending or conversion into uranium oxide (see Annex II).

D.1. Natanz

14. **Fuel Enrichment Plant:** FEP is a centrifuge enrichment plant for the production of low enriched uranium (LEU) enriched up to 5% U-235, which was first brought into operation in 2007. The plant is divided into Production Hall A and Production Hall B. According to design information submitted by Iran, eight units, each containing 18 cascades, are planned for Production Hall A, which totals approximately 25 000 centrifuges in 144 cascades. Currently, one unit contains IR-2m centrifuges; five contain IR-1 centrifuges; and the other two units do not contain centrifuges. Iran has yet to provide the corresponding design information for Production Hall B.

15. In the unit containing IR-2m centrifuges, as of 14 May 2014, the situation remained unchanged from the Director General's previous report: six cascades had been fully installed with IR-2m centrifuges;[19] none of these cascades had been fed with natural UF_6; and preparatory installation work had been completed for the other 12 IR-2m cascades in the unit.

16. In the five units containing IR-1 centrifuges, as of 14 May 2014, the situation remained unchanged from the Director General's previous report: 90 cascades had been fully installed,[20] of which 54 were being fed with natural UF_6.[21] As previously reported, preparatory installation work had been completed for 36 IR-1 cascades in the two units not containing centrifuges.

17. As of 13 May 2014, Iran had fed 133 839 kg of natural UF_6 into the cascades at FEP since production began in February 2007 and produced a total of 11 767 kg of UF_6 enriched up to 5% U-235.

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[15] As declared by Iran in its DIQs for the Fuel Enrichment Plant (FEP) at Natanz.

[16] GOV/2010/10, para. 8; and as declared by Iran in its DIQ for FPFP.

[17] These figures include 107.6 kg of UF_6 enriched up to 5% U-235 that has been produced from the downblending of UF_6 enriched up to 20% U-235.

[18] This comprises nuclear material in storage as well as nuclear material in the cold traps and inside cylinders still attached to the enrichment process.

[19] The number of IR-2m centrifuges installed at FEP (1008) was unchanged from that indicated in the Director General's previous report.

[20] The number of IR-1 centrifuges installed at FEP (15 420) was unchanged from that indicated in the Director General's previous report.

[21] GOV/2014/10, para. 22. The Agency has applied additional containment and surveillance measures to confirm that no more than the 54 IR-1 cascades are being fed with nuclear material at FEP.

18. Based on the results of the analysis of environmental samples taken at FEP,[22] and other verification activities, the Agency has concluded that the facility has operated as declared by Iran in the relevant DIQ.

19. **Pilot Fuel Enrichment Plant:** PFEP is a pilot LEU production, and research and development (R&D) facility that was first brought into operation in October 2003. It can accommodate six cascades, and is divided between an area designated by Iran for the production of UF_6 enriched up to 20% U-235 (Cascades 1 and 6) and an area designated by Iran for R&D (Cascades 2, 3, 4 and 5).

20. ***Production area:*** As indicated in the Director General's previous report, Iran has ceased feeding Cascades 1 and 6 with UF_6 enriched up to 5% U-235 and is feeding them with natural UF_6 instead.[23] On 8 February 2014, Iran provided an update to parts of the DIQ in which it stated that it had taken measures "due to change in level of enrichment" and that the measures "are temporarily taken during the first step implementation of the JPA." Since the JPA took effect, Iran has not operated Cascades 1 and 6 in an interconnected configuration.[24]

21. As of 20 January 2014, when it ceased production of UF_6 enriched up to 20% U-235, Iran had fed 1630.8 kg of UF_6 enriched up to 5% U-235 into Cascades 1 and 6 since production began in February 2010 and had produced a total of 201.9 kg of UF_6 enriched up to 20% U-235, all of which has since been withdrawn from the process and verified by the Agency. Between 20 January 2014 and 6 May 2014, Iran fed 265.3 kg of natural UF_6 into Cascades 1 and 6 at PFEP and produced a total of 26.1 kg of UF_6 enriched up to 5% U-235.

22. ***R&D area:*** Since the Director General's previous report, Iran has been intermittently feeding natural UF_6 into IR-6s centrifuges as single machines and into IR-1, IR-2m, IR-4 and IR-6 centrifuges, sometimes into single machines and sometimes into cascades of various sizes.[25] The single installed IR-5 centrifuge has yet to be fed with UF_6. As indicated in the Director General's previous report, the Agency has also observed a new "casing", which remains in place but without connections.[26]

23. Between 10 February 2014 and 6 May 2014, a total of approximately 389.1 kg of natural UF_6 was fed into centrifuges in the R&D area, but no LEU was withdrawn as the product and the tails were recombined at the end of the process.

24. Between 20 January 2014 and 14 April 2014, Iran downblended 104.56 kg of its inventory of UF_6 enriched up to 20% U-235.

25. Based on the results of the analysis of environmental samples taken at PFEP,[27] and other verification activities, the Agency has concluded that the facility has operated as declared by Iran in the relevant DIQ.

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[22] Results are available to the Agency for samples taken up to 5 February 2014.

[23] As of 11 May 2014, Cascades 1 and 6 contained a total of 328 IR-1 centrifuges (unchanged from that indicated in the Director General's previous report).

[24] GOV/2014/10, para. 28. The Agency has applied additional containment and surveillance measures to confirm that Cascades 1 and 6 are not interconnected.

[25] On 11 May 2014, there were 13 IR-4 centrifuges, nine IR-6 centrifuges, one IR-5 centrifuge, one IR-1 centrifuge and no IR-6s centrifuges installed in Cascade 2; 14 IR-1 centrifuges and ten IR-2m centrifuges installed in Cascade 3; 164 IR-4 centrifuges installed in Cascade 4; and 162 IR-2m centrifuges installed in Cascade 5.

[26] GOV/2014/10, para. 30.

[27] Results are available to the Agency for samples taken up to 28 January 2014.

D.2. Fordow

26. **Fordow Fuel Enrichment Plant:** FFEP is, according to the DIQ of 18 January 2012, a centrifuge enrichment plant for the production of UF_6 enriched up to 20% U-235 and the production of UF_6 enriched up to 5% U-235.[28] The facility, which was first brought into operation in 2011, is designed to contain up to 2976 centrifuges in 16 cascades, divided between Unit 1 and Unit 2. To date, all of the centrifuges installed are IR-1 machines. On 8 February 2014, Iran provided an update to parts of the DIQ in which it stated that it had taken measures "due to change in level of enrichment" and that the measures "are temporarily taken during the first step implementation of the JPA."

27. As indicated in the Director General's previous report, Iran has ceased feeding UF_6 enriched up to 5% U-235 into the four cascades of Unit 2 previously used for this purpose and is feeding them with natural UF_6 instead. Since the JPA took effect, Iran has not operated these cascades in an interconnected configuration.[29] None of the other 12 cascades in FFEP had been fed with UF_6.[30]

28. As a result of the physical inventory verification (PIV) carried out by the Agency at FFEP in November 2013, the Agency has verified, within the measurement uncertainties normally associated with such a facility, the inventory as declared by Iran on 23 November 2013.

29. Between 18 January and 2 February 2014, the Agency conducted another PIV at FFEP to verify the inventory as declared by Iran on 20 January 2014, the results of which are still being evaluated by the Agency.

30. As of 20 January 2014, when it ceased production of UF_6 enriched up to 20% U-235, Iran had fed 1806 kg of UF_6 enriched up to 5% U-235 into the cascades at FFEP since production began in December 2011 and had produced a total of 245.9 kg of UF_6 enriched up to 20% U-235, all of which has since been withdrawn from the process and verified by the Agency. Between 20 January 2014 and 13 May 2014, Iran fed 739.3 kg of natural UF_6 into the cascades at FFEP and produced a total of 76.5 kg of UF_6 enriched up to 5% U-235.

31. Based on the results of the analysis of environmental samples taken at FFEP,[31] and other verification activities, the Agency has concluded that the facility has operated as declared by Iran in the relevant DIQ.

D.3. Other Enrichment Related Activities

32. Iran continues to provide the Agency with regular managed access to centrifuge assembly workshops, centrifuge rotor production workshops and storage facilities.[32] Such access, as well as associated mutually agreed information, will also be provided by Iran pursuant to one of the practical measures agreed in relation to the Framework for Cooperation (see para. 9 above). As part of this managed access, Iran has also provided the Agency with an inventory of centrifuge rotor assemblies to be used to replace those centrifuges that fail. The Agency has analysed the information provided by Iran and, upon request, has received additional clarifications.

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[28] GOV/2009/74, paras 7 and 14; GOV/2012/9, para. 24. Iran has provided the Agency with an initial DIQ and three revised DIQs with different stated purposes for FFEP. In light of the difference between the original stated purpose of the facility and the purpose for which it is now being used, additional information from Iran is still required.

[29] GOV/2014/10, para. 36. The Agency has applied additional containment and surveillance measures at FFEP to confirm that only the four IR-1 cascades are used to enrich UF_6 and that they are not interconnected.

[30] The number of centrifuges installed at FFEP (2710) was unchanged from that indicated in the Director General's previous report.

[31] Results are available to the Agency for samples taken up to 30 November 2013.

[32] This relates to one of Iran's undertakings in the JPA.

Based on analysis of all the information provided by Iran, as well as the managed access and other verification activities carried out by the Agency, the Agency can confirm that centrifuge rotor manufacturing and assembly are consistent with Iran's replacement programme for damaged centrifuges.[33]

33. Pursuant to one of the practical measures agreed in relation to the Framework for Cooperation, as indicated above (para. 9), Iran has agreed to provide mutually agreed information and arrange a technical visit to a centrifuge research and development centre.

E. Reprocessing Activities

34. Iran is required, pursuant to the relevant resolutions of the Board of Governors and the Security Council, to suspend its reprocessing activities, including R&D.[34] As indicated in the Director General's previous report, Iran has stated that "during the first step time-bound (six months), Iran will not engage in stages of reprocessing activities, or construction of a facility capable of reprocessing."[35]

35. The Agency has continued to monitor the use of hot cells at the Tehran Research Reactor (TRR)[36] and the Molybdenum, Iodine and Xenon Radioisotope Production (MIX) Facility.[37] The Agency carried out an inspection and design information verification (DIV) at TRR on 14 May 2014, and a DIV at the MIX Facility on 12 May 2014. The Agency can confirm that there are no ongoing reprocessing related activities with respect to TRR, the MIX Facility and the other facilities to which the Agency has access in Iran.

F. Heavy Water Related Projects

36. Contrary to the relevant resolutions of the Board of Governors and the Security Council, Iran has not suspended work on all heavy water related projects.[38] However, since the JPA took effect, Iran has neither installed any major components at the IR-40 Reactor nor produced nuclear fuel assemblies for the IR-40 Reactor at the Fuel Manufacturing Plant (FMP) (see para. 47 below).

37. **IR-40 Reactor:** The IR-40 Reactor, which is under Agency safeguards, is a 40 MW heavy water moderated research reactor designed to contain 150 fuel assemblies containing natural uranium in the form of UO_2.

38. On 11 May 2014, the Agency carried out a DIV at the IR-40 Reactor and observed that, since the Director General's previous report, none of the reactor's remaining major components had been installed.[39] As indicated in the Director General's previous report, in line with its undertaking in relation to the Framework for Cooperation (see para. 8 above), in February 2014 Iran submitted an updated DIQ for the IR-40 Reactor. The

[33] This relates to one of Iran's undertakings in the JPA.
[34] GOV/2013/56, footnote 28.
[35] This relates to one of Iran's undertakings in the JPA.
[36] TRR is a 5 MW reactor which operates with 20% U-235 enriched fuel and is used for the irradiation of different types of targets and for research and training purposes.
[37] The MIX Facility is a hot cell complex for the separation of radiopharmaceutical isotopes from targets, including uranium, irradiated at TRR.
[38] GOV/2013/56, footnote 32.
[39] GOV/2013/56, para. 34.

Agency reviewed the DIQ and requested certain additional clarifications, which Iran provided. As indicated earlier (para. 8 above), on 5 May 2014, the Agency and Iran agreed on safeguards measures for the IR-40 Reactor. Pursuant to one of the practical measures agreed in relation to the Framework for Cooperation, as indicated earlier (para. 9 above), Iran is to conclude with the Agency a safeguards approach for the IR-40 Reactor by 25 August 2014.

39. **Heavy Water Production Plant:** The Heavy Water Production Plant (HWPP) is a facility for the production of heavy water with a design capacity to produce 16 tonnes of reactor-grade heavy water per year.

40. As previously reported, although the HWPP is not under Agency safeguards, the plant was subject to managed access by the Agency on 8 December 2013.[40] During the managed access, Iran also provided the Agency with mutually agreed relevant information. In addition, access to the heavy water storage location at the Uranium Conversion Facility (UCF) at Esfahan has enabled the Agency to characterize the heavy water.[41]

G. Uranium Conversion and Fuel Fabrication

41. Iran is conducting a number of activities at UCF, the Enriched UO_2 Powder Plant (EUPP), FMP and the Fuel Plate Fabrication Plant (FPFP) at Esfahan, as indicated below, which are in contravention of its obligations to suspend all enrichment related activities and heavy water related projects, notwithstanding that the facilities are under Agency safeguards.

42. Since Iran began conversion and fuel fabrication at its declared facilities, it has, inter alia:

- Produced 550 tonnes of natural UF_6 at UCF, of which 157 tonnes have been transferred to FEP.[42]
- Fed into the R&D conversion process at UCF 53 kg of UF_6 enriched to 3.34% U-235 and produced 24 kg of uranium in the form of UO_2.[43]
- Fed into the conversion process at FPFP 303.2 kg of UF_6 enriched up to 20% U-235 (+40.5 kg since the Director General's previous report) and produced 142.5 kg of uranium in the form of U_3O_8.
- Transferred four tonnes of natural UF_6 from UCF to EUPP.[44] In addition, 4.3 tonnes of UF_6 enriched up to 5% U-235 have been transferred from FEP to EUPP.
- Transferred to TRR 20 fuel assemblies containing uranium enriched up to 20% U-235 and two fuel assemblies containing uranium enriched to 3.34% U-235.

43. **Uranium Conversion Facility:** UCF is a conversion facility for the production of both natural UF_6 and natural UO_2 from uranium ore concentrate (UOC). It is planned that UCF will also produce uranium metal ingots from natural and depleted UF_4, and produce UF_4 from depleted UF_6.

[40] GOV/2014/10, para. 13.
[41] GOV/2013/56, para. 39.
[42] Four tonnes have been transferred back to UCF.
[43] GOV/2012/55, para. 35.
[44] GOV/2013/40, footnote 44.

44. Iran has declared that, as of 19 May 2014, it had produced 13.8 tonnes[45] of natural uranium in the form of UO_2 through the conversion of UOC.[46] The Agency has verified that, as of the same date, Iran had transferred 13.2 tonnes[47] of natural uranium in the form of UO_2 to FMP.

45. **Enriched UO_2 Powder Plant:** EUPP is a facility for the conversion of UF_6 enriched up to 5% U-235 into UO_2 powder.[48] On 10 May 2014, the Agency conducted a DIV and an inspection at EUPP during which it confirmed that commissioning of the facility using natural uranium had begun.

46. **Fuel Manufacturing Plant:** FMP is a facility for the fabrication of nuclear fuel assemblies for power and research reactors (see Annex II).

47. On 10 and 11 May 2014, the Agency conducted a DIV and an inspection at FMP and verified that Iran had continued its cessation of production of nuclear fuel assemblies using natural UO_2 for the IR-40 Reactor and that all of the fuel assemblies that had been produced previously remained at FMP.

48. **Fuel Plate Fabrication Plant:** FPFP is a facility for the conversion of UF_6 enriched up to 20% U-235 into U_3O_8 and the manufacture of fuel assemblies made of fuel plates containing U_3O_8 (see Annex II).

49. Between 17 and 21 May 2014, the Agency conducted a PIV at UCF, the results of which are being evaluated by the Agency.

50. As indicated in the Director General's previous report, Iran has stated that "during the first step of time-bound (six months), Iran declares that there is no reconversion line to reconvert uranium oxide enriched up to 20% U-235 back into UF_6 enriched up to 20% U-235".[49] On 12 and 14 May 2014, the Agency conducted a DIV and an inspection at FPFP during which it confirmed that the conversion of UF_6 enriched up to 20% U-235 into U_3O_8 was ongoing and that there was no process line at the plant for the reconversion of uranium oxides into UF_6.

51. The Agency has verified that, as of 11 May 2014, Iran had fed a total of 303.2 kg of UF_6 enriched up to 20% U-235 (204.7 kg of uranium) into the conversion process of FPFP and had produced 142.5 kg of uranium in the form of U_3O_8. The Agency also verified that 40.4 kg of uranium were contained in solid and liquid scrap. The remainder of the uranium that was fed into the process remains in the process and in waste.

52. The Agency has verified that, as of 11 May 2014, Iran had produced at FPFP one experimental fuel assembly and 26 TRR-type fuel assemblies. Twenty of these fuel assemblies, including the experimental assembly, had been transferred to TRR.

[45] Unchanged from the figure indicated in the Director General's previous report.
[46] This amount only refers to material qualified for fuel fabrication.
[47] Unchanged from the figure indicated in the Director General's previous report.
[48] GOV/2013/40, para. 45.
[49] This relates to one of Iran's undertakings in the JPA.

H. Possible Military Dimensions

53. Previous reports by the Director General have identified outstanding issues related to possible military dimensions to Iran's nuclear programme and actions required of Iran to resolve these.[50] The Agency remains concerned about the possible existence in Iran of undisclosed nuclear related activities involving military related organizations, including activities related to the development of a nuclear payload for a missile. Iran is required to cooperate fully with the Agency on all outstanding issues, particularly those which give rise to concerns about the possible military dimensions to Iran's nuclear programme, including by providing access without delay to all sites, equipment, persons and documents requested by the Agency.[51]

54. The Annex to the Director General's November 2011 report (GOV/2011/65) provided a detailed analysis of the information available to the Agency at that time, indicating that Iran has carried out activities that are relevant to the development of a nuclear explosive device. This information is assessed by the Agency to be, overall, credible.[52] Iran dismissed the Agency's concerns, largely on the grounds that Iran considers them to be based on unfounded allegations.[53] The Agency has obtained more information since November 2011 that has further corroborated the analysis contained in that Annex.

55. As indicated above (para. 3), the Agency and Iran agreed to cooperate further with respect to verification activities to be undertaken by the Agency to resolve all present and past issues. The seven practical measures implemented in the second step of the Framework for Cooperation included the provision of "information and explanations for the Agency to assess Iran's stated need or application for the development of Exploding Bridge Wire detonators".[54]

56. At the technical meeting in Tehran on 26 April 2014 and in a letter dated 30 April 2014, Iran provided the Agency with information and explanations for the Agency to assess Iran's stated need or application for the development of EBW. At a technical meeting in Tehran on 20 May 2014, in response to a request from the Agency, Iran provided additional information and explanations, including showing documents, to substantiate its stated need and application of EBW. Iran showed information to the Agency that simultaneous firing of EBW was tested for a civilian application. This is the first time that Iran has engaged in a technical exchange with the Agency on this or any other of the outstanding issues related to possible military dimensions to Iran's nuclear programme since 2008. The Agency's assessment of the information provided by Iran is ongoing.

57. As indicated to Iran at the meeting in Tehran on 26 April 2014 and in the Agency's letter to Iran of 12 May 2014, the Agency needs to be able to conduct a system assessment of the outstanding issues contained in the Annex to the Director General's November 2011 report (GOV/2011/65). This will involve considering and acquiring an understanding of each issue in turn (of which EBW is one), and then integrating all of the issues into a "system" and assessing that system as a whole.

58. As stated earlier (see para. 9 above), two of the additional practical measures agreed by Iran and the Agency on 20 May 2014, relate to the information contained in the Annex to the Director General's November 2011 report. These are the measures relating to Iran: exchanging information with the Agency with respect to the allegations related to the initiation of high explosives, including the conduct of large scale high explosives

[50] For example: GOV/2011/65, paras 38-45 and Annex; GOV/2011/29, para. 35; GOV/2011/7, Attachment; GOV/2010/10, paras 40-45; GOV/2009/55, paras 18-25; GOV/2008/38, paras 14-21; GOV/2008/15, paras 14-25 and Annex; GOV/2008/4, paras 35-42.

[51] Security Council resolution 1929, paras 2 and 3.

[52] GOV/2011/65, Annex, Section B.

[53] GOV/2012/9, para. 8.

[54] GOV/2011/65, Annex, Section C, paras 38-40 and 58.

experimentation in Iran;[55] and providing mutually agreed relevant information and explanations related to studies made and/or papers published in Iran in relation to neutron transport and associated modelling and calculations and their alleged application to compressed materials.[56]

59. The Agency continues to seek answers from Iran to the detailed questions provided to Iran regarding Parchin and the foreign expert,[57] and to request access to a particular location at the Parchin site.[58] Since the Agency's first request for access, extensive activities have taken place at this location that will have seriously undermined the Agency's ability to conduct effective verification.[59] Since the Director General's previous report, the Agency has observed through satellite imagery, building materials, debris and earth deposits, as well as ongoing construction activities that appear to show the removal/replacement or refurbishment of the external wall structures of the site's two main buildings.

I. Design Information

60. Under the terms of its Safeguards Agreement and relevant resolutions of the Board of Governors and the Security Council, Iran is required to implement the provisions of the modified Code 3.1 of the Subsidiary Arrangements General Part concerning the early provision of design information.[60]

J. Additional Protocol

61. Contrary to the relevant resolutions of the Board of Governors and the Security Council, Iran is not implementing its Additional Protocol. The Agency will not be in a position to provide credible assurance about the absence of undeclared nuclear material and activities in Iran unless and until Iran provides the necessary cooperation with the Agency, including by implementing its Additional Protocol.[61]

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[55] GOV/2011/65, Annex, Section C, paras 41-46.

[56] GOV/2011/65, Annex, Section C, paras 52-54.

[57] GOV/2011/65, Annex, Section C; GOV/2012/23, para. 5.

[58] The Agency has information provided by Member States indicating that Iran had constructed a large explosives containment vessel (chamber) at this location in which to conduct hydrodynamic experiments. Such experiments would be strong indicators of possible nuclear weapon development (GOV/2011/65, Annex, paras 49-51).

[59] For a list of the most significant developments observed by the Agency at this location between February 2012 and the publication of the Director General's May 2013 report, see GOV/2012/55, para. 44, GOV/2013/6, para. 52 and GOV/2013/27, para. 55.

[60] In a letter dated 29 March 2007, Iran informed the Agency that it had suspended implementation of the modified Code 3.1 of the Subsidiary Arrangements to its Safeguards Agreement (GOV/INF/2007/8). In accordance with Article 39 of Iran's Safeguards Agreement, agreed Subsidiary Arrangements cannot be changed unilaterally; nor is there a mechanism in the Safeguards Agreement for the suspension of provisions agreed to in the Subsidiary Arrangements. Therefore, the modified Code 3.1, as agreed to by Iran in 2003, remains in force. Iran is further bound by operative para. 5 of Security Council resolution 1929 (2010).

[61] Iran's Additional Protocol was approved by the Board of Governors on 21 November 2003 and signed by Iran on 18 December 2003, although it has not been brought into force. Iran provisionally implemented its Additional Protocol between December 2003 and February 2006.

K. Other Matters

62. On 14 May 2014, the Agency confirmed that ten fuel assemblies which had been produced in Iran and which contain uranium that was enriched in Iran up to 20% U-235 were in the core of TRR.[62] On the same date, the Agency observed that the Mini IR-40 prototype fuel assembly was in the storage pool.[63]

63. As of 12 May 2014, one fuel plate containing a mixture of U_3O_8 (up to 20% enriched) and aluminium was present at the MIX facility, having been transferred from FPFP, and was being used for R&D activities aimed at optimizing the production of ^{99}Mo, ^{133}Xe and ^{132}I isotopes.[64]

64. Between 28 April and 1 May 2014, the Agency conducted a PIV at the Bushehr Nuclear Power Plant, at which time the reactor was shut down for refueling.

L. Summary

65. While the Agency continues to verify the non-diversion of declared nuclear material at the nuclear facilities and LOFs declared by Iran under its Safeguards Agreement, the Agency is not in a position to provide credible assurance about the absence of undeclared nuclear material and activities in Iran, and therefore to conclude that all nuclear material in Iran is in peaceful activities.[65]

66. The practical measures in relation to the Framework for Cooperation as agreed on 11 November 2013 and 9 February 2014 have been implemented by Iran as planned. Iran's engagement with the Agency, including the provision of information, and the Agency's ongoing analysis is helping the Agency to gain a better understanding of Iran's nuclear programme.

67. It is important that Iran continues to engage with the Agency to resolve all outstanding issues related to Iran's nuclear programme. Iran's agreement on 20 May 2014 to implement five practical measures is a further step forward.

68. The Agency continues to undertake monitoring and verification in relation to the measures set out in the JPA.

69. The Director General will continue to report as appropriate.

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[62] On 14 May 2014, the core of TRR comprised a total of 33 fuel assemblies.

[63] GOV/2013/40, para. 64.

[64] GOV/2013/40, para. 65.

[65] The Board of Governors has confirmed on numerous occasions, since as early as 1992, that para. 2 of INFCIRC/153 (Corr.), which corresponds to Article 2 of Iran's Safeguards Agreement, authorizes and requires the Agency to seek to verify both the non-diversion of nuclear material from declared activities (i.e. correctness) and the absence of undeclared nuclear activities in the State (i.e. completeness) (see, for example, GOV/OR.864, para. 49 and GOV/OR.865, paras 53-54).

List of Declared Nuclear Facilities and LOFs in Iran

Tehran:

1. Tehran Research Reactor (TRR)
2. Molybdenum, Iodine and Xenon Radioisotope Production (MIX) Facility
3. Jabr Ibn Hayan Multipurpose Laboratories (JHL)

Esfahan:

4. Miniature Neutron Source Reactor (MNSR)
5. Light Water Sub-Critical Reactor (LWSCR)
6. Heavy Water Zero Power Reactor (HWZPR)
7. Uranium Conversion Facility (UCF)
8. Fuel Manufacturing Plant (FMP)
9. Fuel Plate Fabrication Plant (FPFP)
10. Enriched UO_2 Powder Plant (EUPP)

Natanz:

11. Fuel Enrichment Plant (FEP)
12. Pilot Fuel Enrichment Plant (PFEP)

Fordow:

13. Fordow Fuel Enrichment Plant (FFEP)

Arak:

14. Iran Nuclear Research Reactor (IR-40 Reactor)

Karaj:

15. Karaj Waste Storage

Bushehr:

16. Bushehr Nuclear Power Plant (BNPP)

Darkhovin:

17. 360 MW Nuclear Power Plant

Shiraz:

18. 10 MW Fars Research Reactor (FRR)

LOFs:

Nine (all situated within hospitals)

Table 1: Summary of UF_6 Production and Flows

	Date	Quantity	Enrichment
Produced at UCF	19 May 2014	550 000 kg	Natural
Fed into FEP, PFEP and FFEP	May 2014	134 843.6 kg	Natural
Produced at FEP, PFEP and FFEP	May 2014	11 869.6 kg	Up to 5%
Produced by downblending	6 May 2014	107.6 kg	Up to 5%
Fed into PFEP	20 January 2014	1630.8 kg	Up to 5%
Produced at PFEP	20 January 2014	201.9 kg	Up to 20%
Fed into FFEP	20 January 2014	1806.0 kg	Up to 5%
Produced at FFEP	20 January 2014	245.9 kg	Up to 20%

Table 2: Inventory of UF_6 Enriched up to 20% U-235

Produced at FFEP and PFEP	447.8 kg
Fed into conversion process	303.2 kg
Downblended	106.2 kg*
Stored as UF_6	38.4 kg

* The figure includes 1.6 kg that was previously downblended (GOV/2012/55, para. 10).

Table 3: Conversion at UCF

Conversion process	Quantity produced	Transferred to FMP
UF_6 (~3.4% U-235) into UO_2	24 kg U	24 kg U
Natural UOC into UO_2	13 792 kg U*	13 229 kg U

* Uranium content in material qualified for fuel fabrication.

Table 4: Fuel Manufacturing at FMP

Item	Number produced	Enrichment	Item mass (g U)	Number irradiated
Test fuel rod for IR-40 Reactor	3	Natural uranium	500	1
Test fuel rod	2	3.4%	500	-
Fuel rod assembly	2	3.4%	6 000	1
Mini IR-40 prototype fuel assembly	1	Natural uranium	10 000	1
IR-40 prototype fuel assembly	36	Natural uranium	35 500	Not applicable
IR-40 fuel assembly	11	Natural uranium	56 500	-

Table 5: Conversion of UF_6 Enriched up to 20% U-235 into U_3O_8 at FPFP

Feed quantity	Quantity produced
303.2 kg of UF_6 (204.7 kg U)	142.5 kg U of U_3O_8

Table 6: TRR Fuel Fabrication at FPFP

Item	Number produced	Enrichment	Item mass (g U)	Present at TRR	Irradiated
TRR test plate (Natural Uranium)	4	Natural uranium	5	2	1
TRR test plate	5	19%	75	5	2
TRR control fuel element	8	19%	1 000	5	5
TRR standard fuel element	18	19%	1 400	14	6
Test assembly (with 8 plates)	1	19%	550	1	-

Update on Iran's implementation of "voluntary measures" undertaken in relation to the Joint Plan of Action agreed between the E3+3 and Iran on 24 November 2013

The Agency confirms that, as of 20 May 2014, Iran has:

1. not enriched uranium above 5% U-235 at any of its declared facilities;
2. not operated cascades in an interconnected configuration at any of its declared facilities;
3. completed the dilution – down to an enrichment level of no more than 5% U-235 – of half of the nuclear material that had been in the form of UF_6 enriched up to 20% U-235 on 20 January 2014;[66]
4. fed 66.1 kg[67] of UF_6 enriched up to 20% U-235 into the conversion process at FPFP for conversion into uranium oxide;[68]
5. had no process line to reconvert uranium oxides back into UF_6 at FPFP;
6. not made "any further advances" to its activities at FEP, FFEP or the Arak reactor (IR-40 Reactor), including the manufacture and testing of fuel for the IR-40 Reactor;
7. provided an updated DIQ for the IR-40 Reactor and agreed with the Agency safeguards measures for the reactor;
8. begun the commissioning of EUPP – the facility to be used for the conversion to oxide of the UF_6 "newly enriched" up to 5% U-235;
9. continued its safeguarded enrichment R&D practices at PFEP, without accumulating enriched uranium;
10. not carried out reprocessing related activities at TRR and the MIX Facility or at any of the other facilities to which the Agency has access;
11. provided information and managed access to the uranium mine and mill at Gchine,[69] to the Saghand Uranium Mine[70] and the Ardakan Uranium Production Plant;[71]
12. continued to provide daily access to the enrichment facilities at Natanz and Fordow;
13. provided regular managed access to centrifuge assembly workshops, centrifuge rotor production workshops and storage facilities, and provided information thereon; and
14. provided,[72] in relation to enhanced monitoring, the following:
    i. plans for nuclear facilities and a description of each building on each nuclear site
    ii. descriptions of the scale of operations being conducted for each location engaged in specified nuclear activities
    iii. information on uranium mines and mills, and on source material

[66] As of 14 April 2014, Iran had diluted 104.56 kg of the 209.1 kg of the nuclear material that had been in the form of UF_6 enriched up to 20% U-235 on 20 January 2014. Iran has undertaken, by 20 July 2014, to convert the remainder of this UF_6 enriched up to 20% U-235 into oxide.

[67] As of 11 May 2014.

[68] Pursuant to its undertaking to convert into oxide the remainder of the UF_6 enriched up to 20% U-235 (see footnote 67).

[69] On 29 January 2014.

[70] On 6 May 2014.

[71] On 7 May 2014.

[72] As of 20 April 2014.